

STATE OF VERMONT  
PUBLIC SERVICE BOARD

Docket No. 7515

Petition of Green Mountain Power Corporation    )  
for a certificate of public good authorizing the    )  
permanent installation of a 14 MVA three-phase    )  
transformer at its Westminster Substation #74,    )  
located on Back Westminster Road in the Town    )  
of Westminster, Vermont                                )

Order entered: 7/10/2009

**I. INTRODUCTION**

This case involves a petition filed on April 3, 2009, by Green Mountain Power Corporation ("GMP") requesting a certificate of public good under 30 V.S.A. § 248(j) requesting authorization for the permanent installation of a three-phase 14 MVA transformer at the Westminster substation in Westminster, Vermont ("the Project").

Notice of the filing was sent on April 28, 2009, to all entities specified in 30 V.S.A. § 248(a)(4)(c) and all other interested parties. The notice stated that any party wishing to submit comments as to whether the petition raises a significant issue with respect to the substantive criteria of 30 V.S.A. § 248 needed to file comments with the Board on or before May 28, 2009. A similar notice of the filing was published in the *Brattleboro Reformer* on April 30 and May 7, 2009.

On May 15, 2009, Thomas and Joan Marshall filed a letter expressing concern with the potential noise impacts related to a "temporary portable generator"<sup>1</sup> installed by GMP last fall

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1. Based upon the comments of the Marshalls and GMP, it appears that the term "temporary portable generator" refers to the temporary mobile substation that is used during construction. The Marshalls refer to the noise from the "temporary portable generator" in the past tense in their letter. If the noise was ongoing, it would likely be caused by the temporary 14 MVA transformer; the fact that the noise levels had ceased by the time the Marshalls submitted

(continued...)

and stated that they would object to the installation of the new transformer unless the noise levels from the unit were considerably less than the temporary unit. The Marshalls additionally requested that security lighting be kept to a minimum.

On May 28, 2009, the Agency of Natural Resources ("ANR") filed a letter stating that it has not identified any significant issues related to the substantive criteria of Section 248(b)(5).

On May 28, 2009, the Department of Public Service ("Department") filed a letter stating that it does not believe that the petition raises a significant issue with respect to the criteria of Section 248 and has no objection to the issuance of a certificate of public good.

On June 1, 2009, GMP filed a letter that it had sent to the Marshalls. GMP states that the use of the temporary mobile substation will increase noise levels at the site for a period of up to two months while GMP is doing construction work at the substation. However, after construction is complete, the noise levels from the permanently-installed 14 MVA transformer will not be any higher than the conditions that existed at the site while the 14 MVA transformer was installed on a temporary basis.

On June 15, 2009, GMP filed a letter stating that it will eliminate the security lighting at the Westminster substation.

The Board has determined that the proposed construction will be of limited size and scope and that the petition has effectively addressed the issues raised with respect to the substantive criteria of 30 V.S.A. § 248. Consequently, we find that the procedures authorized by Section 248(j) are sufficient to satisfy the public interest, and no hearings are required.

## **II. FINDINGS**

1. GMP's Westminster substation is located on Back Westminster Road in Westminster, Vermont. Arthur pf. at 2; exh. GMP-MA-A.

2. In the fall of 2008, GMP determined that one of the three single-phase transformers at the substation was failing. The failed transformer was manufactured in 1967; the other two transformers in the bank were manufactured in 1967 and 1971 and are subject to failure. GMP

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1. (...continued)  
their letter strongly suggests that the noise was caused by the temporary mobile substation.

did not have single-phase transformers with similar compatible voltages available and installed a three-phase 14 MVA spare transformer with compatible voltages on a temporary basis. Arthur pf. at 2.

3. GMP is proposing that the three-phase 14 MVA transformer be installed on a permanent basis. Arthur pf. at 3.

4. In addition to the permanent placement of the three-phase 14 MVA transformer, the Project involves replacing the existing high-side fuses with higher-capacity fuses. Other equipment changes, such as insulators, connectors, and instrument transformers, will be minor and done if necessary and cost effective. Arthur pf. at 5.

5. GMP will install an oil-containment system at the substation that will consist of a steel-reinforced concrete oil-containment pit. The pit will be constructed to contain the entire volume of the transformer oil and at least five inches of precipitation. The pit will conform to IEEE standards and will be in compliance with U.S. Environmental Protection Agency requirements. Arthur pf. at 5-6.

6. The estimated cost of the Project is \$767,700. These costs will be accounted for as a capital cost and will be refined once the necessary contracts have been entered into. Arthur pf. at 8.

7. The work plan for the Project is as follows:

- Install a 15 MVA mobile substation to carry customer load during construction.
- Remove the overhead bus for crane access.
- Test and move the temporary transformer off the existing concrete pad.
- Remove the existing concrete pad.
- Install erosion control fabric as necessary.
- Excavate a hole for new transformer oil containment and support. The site has some ledge that may have to be hammered out with air or hydraulics.
- Install the concrete oil containment and allow proper curing time.
- Replace high-side fuses with fuses of greater capacity.
- Re-install the transformer and connect control and monitoring equipment.
- Test and commission the transformer.
- Re-install the 69 kV and 12 kV busses over the transformer and reconnect.

- Restore the transformer to service and remove the mobile substation.

Arthur pf. at 8-9.

### **Orderly Development of the Region**

[30 V.S.A. § 248(b)(1)]

8. The Project will not unduly interfere with the orderly development of the region, with due consideration having been given to the recommendations of the municipal and regional planning commissions, the recommendations of municipal legislative bodies, and the land conservation measures contained in the plan of any affected municipality. This finding is supported by findings 9 and 10, below.

9. The Project will occur entirely within the footprint of the existing substation and will not impact land conservation measures of any affected town. Arthur pf. at 9.

10. GMP provided notice of the Project to the selectboard of the Town of Westminster, the Town of Westminster Planning Commission, and the Windham Regional Commission. No comments were provided in response. Arthur pf. at 10.

### **Need for Present and Future Demand for Service**

[30 V.S.A. § 248(b)(2)]

11. The Project is required to meet the need for present and future demand for service which could not otherwise be provided in a more cost-effective manner through energy conservation programs and measures and energy efficiency and load management measures. This finding is supported by findings 12 through 16, below.

12. The peak capacity at the Westminster substation with the single-phase transformers was 6441 kVA. Current peak demand at the substation is approximately 4000 kVA. Arthur pf. at 7.

13. Installation of the 14 MVA transformer will provide additional capacity to back up GMP's new Bellows Falls substation, after the Westminster substation feeders have been converted from 8320 volts to 12470 volts. The conversion of the Westminster feeders is anticipated to occur within the next five years. Feeder back up between the two substations allows customer power to be restored more quickly in the event of an outage. The back up of the

Bellows Falls substation is especially important as GMP will be installing an undervoltage load shedding scheme at the Bellows Falls substation to address limitations in the National Grid and Central Vermont Public Service Corporation systems. Arthur pf. at 3.

14. The cost of a 14 MVA transformer compared to a 10.5 MVA transformer is not significantly different. Arthur pf. at 10.

15. Energy efficiency measures or distributed generation is not more cost-effective than installing a 14 MVA transformer and does not provide the ability to back up circuits. Arthur pf. at 10.

16. GMP reviewed the possibility of repairing or replacing the failing single-phase transformer with another single-phase transformer and determined that such action would not address the ability to back up the Bellows Falls substation. In addition, GMP examined the possibility of installing a three-phase 10.5 MVA transformer to replace the failing single-phase transformer and concluded that the 10.5 MVA transformer would have limited ability to back up the Bellows Falls substation. Arthur pf. at 3-5.

#### Discussion

The primary argument that GMP advances for installing a 14 MVA transformer at a substation with a load of approximately 4 MVA is that the larger capacity transformer provides the ability to back up the Bellows Falls substation. However, this back up can only occur once the Westminster substation feeders have been upgraded to 12.47 kV, which GMP states will take place within the next five years. We require GMP to notify the Board and the Department once the feeders are converted to 12.47 kV. If the upgrade to the feeders does not occur prior to the summer of 2014, GMP must file an explanation as to why the feeder conversion has not taken place and how it intends to address back up of the Bellows Falls substation. GMP must also confirm that the 14 MVA transformer is dual voltage to enable the feeder upgrade.

#### **System Stability and Reliability**

[30 V.S.A. § 248(b)(3)]

17. The Project will not adversely affect system stability and reliability. Arthur pf. at 4.

**Economic Benefit to the State**

[30 V.S.A. § 248(b)(4)]

18. The Project will result in an economic benefit to the state and its residents. The Project will improve system stability and reliability in the area. The construction of the Project will also create jobs. Arthur pf. at 11.

**Aesthetics, Historic Sites, Air and Water Purity,  
the Natural Environment and Public Health and Safety**

[30 V.S.A. § 248(b)(5)]

19. The Project will not have an undue adverse effect on aesthetics, historic sites, air and water purity, the natural environment and public health and safety. This finding is supported by findings 20 through 41 below, which are the criteria specified in 10 V.S.A. §§ 1424(a)(d) and 6086(a)(1)-(8)(a) and (9)(k).

**Outstanding Resource Waters**

[10 V.S.A. § 1424(a)(d)]

20. The Project is not located on or near any outstanding resource waters. Arthur pf. at 12.

**Water and Air Pollution**

[10 V.S.A. § 6086(a)(1)]

21. The Project will not result in undue water or air pollution. This finding is supported by findings 22 and 23, below.

22. The Project will not result in any emissions. Arthur pf. at 12.

23. The improved oil-containment system will provide greater protection to water resources. Arthur pf. at 12.

**Headwaters**

[10 V.S.A. § 6086(a)(1)(A)]

24. There are no headwaters in the vicinity of the project. Arthur pf. at 12.

**Waste Disposal**

[10 V.S.A. § 6086(a)(1)(B)]

25. The Project will meet applicable health and Environmental Conservation Department regulations to the disposal of wastes, and will not involve the injection of waste materials or any harmful or toxic substances into groundwater or wells. The existing single-phase transformers will be removed and sold if possible. In the event that transformers are not sold, they will be properly disposed of. If oil removal is necessary, the work will be performed by a recycler licensed in Vermont for disposal. There are no PCBs in the oil. Arthur pf. at 6, 12.

**Discussion**

GMP addresses the removal of the existing transformers but does not address disposal of the existing concrete pad and other hardware that may be removed during construction, such as transformers for metering or other equipment that may contain oil. GMP is directed to test the concrete pad and any oil-containing equipment removed from the substation and ensure that the materials are disposed of properly.

**Water Conservation**

[10 V.S.A. § 6086(a)(1)(C)]

26. The Project will not utilize water during or after construction. Arthur pf. at 12.

**Floodways**

[10 V.S.A. §§ 6086(a)(1)(D)]

27. The project is not located in a floodway. Arthur pf. at 13.

**Streams**

[10 V.S.A. §§ 6086(a)(1)(E)]

28. The Project is located near a small drainage brook. Protection to the brook will be enhanced by the installation of the new oil-containment system. Arthur pf. at 13.

**Shorelines**

[10 V.S.A. §§ 6086(a)(1)(F)]

29. The Project is not located on a shoreline. Arthur pf. at 13.

**Wetlands**

[10 V.S.A. § 6086(a)(1)(G)]

30. The Project will not have an adverse impact on any wetlands. The Project is not located near any wetlands and the Project construction will take place entirely within the existing fenceline. Arthur pf. at 13.

**Sufficiency of Water and Burden on Existing Water Supply**

[10 V.S.A. §§ 6086(a)(2)&(3)]

31. The Project will not use water during or after construction, and therefore will not place a burden on existing water supplies. Arthur pf. at 13.

**Soil Erosion**

[10 V.S.A. § 6086(a)(4)]

32. The Project will not result in unreasonable soil erosion or reduction in the capacity of the land to hold water so that a dangerous or unhealthy condition may result. Any soils disturbed by the Project will be restored with appropriate soil erosion measures. The Project will be constructed and operated in compliance with the Low Risk Site Handbook for Erosion Prevention and Sediment Control (VT DEC 2006). The substation occupies less than one acre and the construction activities do not require a National Pollutant Discharge Elimination System permit. Arthur pf. at 14.



**Transportation Systems**

[10 V.S.A. § 6086(a)(5)]

33. The Project will not cause unreasonable congestion or unsafe conditions with respect to the use of highways, waterways, railways, airports, and airways, and other means of transportation. The Project will create a minimal increase in traffic during the construction period. Parking will be at the substation site. Arthur pf. at 14.

**Educational Services**

[10 V.S.A. § 6086(a)(6)]

34. The Project will have no impact on the ability of any municipality to provide educational services. Arthur pf. at 14.

**Municipal Services**

[10 V.S.A. § 6086(a)(7)]

35. The Project will not require any municipal or governmental services. Arthur pf. at 15.

**Aesthetics, Historic Sites  
and Rare and Irreplaceable Natural Areas**

[10 V.S.A. § 6086(a)(8)]

36. The Project will not have an undue adverse impact on the scenic or natural beauty of the area, aesthetics, historic sites, or rare and irreplaceable natural areas. This finding is supported by findings 37 through 39, below.

37. The Westminster substation is well screened by trees. Exh. GMP-MA-F; Arthur pf. at 15.

38. The height profile of the new transformer will be essentially the same as the tallest of the current transformers. The new transformer will have a footprint approximately equal to two of the single-phase transformers combined and so will be less visible than the single-phase

transformers. The visual changes to the substation will be minor. Arthur pf. at 15; exh. GMP-MA-F.

39. The use of the temporary mobile substation will increase noise levels at the site for a period of up to two months while GMP is doing construction work at the substation. However, after construction is complete, the noise levels from the permanently-installed 14 MVA transformer will not be any higher than the conditions that existed at the site while the 14 MVA transformer was installed on a temporary basis. Letter of June 1, 2009, from Harriet King, Esq., to Thomas and Joan Marshall.

40. Construction work will take place within an existing substation and will not impact historic or archaeological sites or any rare and irreplaceable natural areas. Arthur pf. at 16.

#### **Necessary Wildlife Habitat and Endangered Species**

[10 V.S.A. § 6086(a)(8)(A)]

41. Construction will take place within an existing substation and will not impact, destroy or imperil necessary wildlife habitat or any threatened or endangered species. Arthur pf. at 16.

#### **Development Affecting Public Investments**

[10 V.S.A. § 6086(a)(9)(K)]

42. The Project will not unnecessarily or unreasonably endanger any public or quasi-public investment or government or public facilities. Arthur pf. at 16.

#### **Least-Cost Integrated Resource Plan**

[30 V.S.A. § 248(b)(6)]

43. The Project is consistent with the provisions of GMP's Integrated Resource Plan ("IRP"), as approved by the Board in Docket 6895 (Order of July 13, 2006). GMP's IRP states:

Green Mountain Power desires to provide consistent, reliable service throughout its distribution system. Adequate reliability often requires additional contingency capacity, system interconnections and back-up circuits in areas where reliability problems have become significant. There may be situations where the existing facilities require replacement because of poor physical condition, even though capacity is still adequate. Alternatives involving enhanced system protection and

distribution system automation will be evaluated to provide improved reliability where needed. Section III c.2.b

The Project is consistent with the above stated goals in the IRP. In addition, the Project will have only minor environmental impacts. Arthur pf. at 16-17.

### **Compliance with Electric Energy Plan**

[30 V.S.A. § 248(b)(7)]

44. The Project is consistent with the Vermont Twenty-Year Electric Plan. Arthur pf. at 17.

45. The Department filed a determination, in a letter dated May 28, 2009, that the proposed project is consistent with the Vermont Twenty-Year Electric Plan, in accordance with 30 V.S.A. § 202(f).

### **Outstanding Resource Waters**

[30 V.S.A. § 248(b)(8)]

46. The Project is not located near any outstanding resource waters. Arthur pf. at 17.

### **Existing or Planned Transmission Facilities**

[30 V.S.A. § 248(b)(10)]

47. The Project is necessitated by the failure of an existing transformer at the Westminster substation. Accordingly, the Project can be served economically by existing or planned transmission facilities without undue adverse effect on Vermont utilities or customers. Arthur pf. at 17.

## **III. CONCLUSION**

Based upon all of the above evidence, we conclude that the proposed construction will be of limited size and scope; the petition does not raise a significant issue with respect to the substantive criteria of 30 V.S.A. § 248; the public interest is satisfied by the procedures authorized by 30 V.S.A. § 248(j); and the proposed project will promote the general good of the state.

#### IV. ORDER

IT IS HEREBY ORDERED, ADJUDGED AND DECREED by the Public Service Board of the State of Vermont ("Board") that the proposed Project, in accordance with the evidence and plans presented in this proceeding, will promote the general good of the State of Vermont in accordance with 30 V.S.A. Section 248, and a certificate of public good shall be issued in the matter, subject to the following conditions:

1. The Project shall be constructed in accordance with the evidence and plans submitted in this proceeding.
2. Green Mountain Power Corporation ("GMP") shall notify the Board and the Department of Public Service once the Westminster substation feeders are converted to 12.47 kV. If the upgrade to the feeders does not occur prior to the summer of 2014, GMP must file an explanation as to why the feeder conversion has not taken place and how it intends to address back up of the Bellows Falls substation.
3. GMP shall confirm that the 14 MVA transformer will be dual voltage to allow for the upgrade of the Westminster feeders.
4. GMP shall file detailed plans for the oil-containment system prior to construction.

Dated at Montpelier, Vermont this 10<sup>th</sup> day of July, 2009.

<u>s/James Volz</u>	)	
	)	
	)	PUBLIC SERVICE
<u>s/David C. Coen</u>	)	
	)	BOARD
	)	
	)	OF VERMONT
<u>s/John D. Burke</u>	)	

OFFICE OF THE CLERK

FILED: July 10, 2009

ATTEST: s/Judith C. Whitney  
Deputy Clerk of the Board

*NOTICE TO READERS: This decision is subject to revision of technical errors. Readers are requested to notify the Clerk of the Board (by e-mail, telephone, or in writing) of any apparent errors, in order that any necessary corrections may be made. (E-mail address: psb.clerk@state.vt.us)*

*Appeal of this decision to the Supreme Court of Vermont must be filed with the Clerk of the Board within thirty days. Appeal will not stay the effect of this Order, absent further Order by this Board or appropriate action by the Supreme Court of Vermont. Motions for reconsideration or stay, if any, must be filed with the Clerk of the Board within ten days of the date of this decision and order.*